

WHAT IS ANTHROPOMETRY?

Anthropometry is the study of physical dimensions in people, including the measurement of human body characteristics such as heights, breadths, girths, and reaches.

SURVEY OBJECTIVES

ANSUR II will develop new anthropometric models for Soldier and Aviator clothing and equipment design, develop anthropometric specifications for digital human figure models to be used in workspace and workstation design, and support clothing and individual equipment (CIE) fielding requirements, all through an update of the 1988 ANSUR database providing the first ever comprehensive traditional/3D anthropometric database that includes Active Duty, National Guard and Reserve components.

ARMY PAYOFF

- Valid anthropometric criteria for requirements documents and cost savings, efficient design, sizing, and tariffing of CIE and hardware
- Reduced risk of human factors failures in fast track acquisitions and multicomponent ensembles
- Improved operational readiness by integrating Active Duty, Guard and Reserve requirements throughout the materiel life cycle
- New 3D capabilities to integrate shape data in the design of body armor and close fitting protective equipment



**U.S. ARMY
ANTHROPOMETRIC
MODELS to OPTIMIZE
the HUMAN SYSTEMS
INTERFACE
(ANSUR II)**



**US ARMY NATICK SOLDIER
RESEARCH, DEVELOPMENT & ENGINEERING
CENTER (NSRDEC)**

Anthropometric Survey (JSAS)
Program Office
Attn: RDNS-WSH-J
15 Kansas Street
Natick, MA 01760

ON THE WEB:

nsrdec.natick.army.mil/ansurII

MEDIA INQUIRIES:

(508) 233-4300
nati-amsrd-nsc-ad-b@conus.army.mil



THE PROBLEM

- Current clothing and individual equipment (CIE) sizing systems no longer cover larger body sizes in today's Total Army.
- Current tariffs are incorrect; Army experienced shortages of select sizes of CIE, requiring urgent procurements to meet deployment requirements.
- There is no common anthropometric basis for sizing and integrating CIE or workstation components.
- Increases in body weight since 1988 are so large that subjects in the 1988 ANSUR database cannot represent today's larger, heavier Soldier even with statistical weighting to account for demographic change.



THE CHALLENGE

- No Total Army data exist to develop sizing systems and procurement tariffs.
- No Total Army data exist for human digital model development.



THE SOLUTION

- Conduct multistage stratified anthropometric survey of Active Duty, Reserve and National Guard components.
- Derive statistically valid Total Army accommodation boundaries using new data.



SURVEY DATA

- Biographical data (e.g. age, sex, racial/ethnic group, rank, Military Occupational Specialties)
- Approximately 95 traditional body measurements
- 3D whole body, head/face and foot scans



QUALITY CONTROL

- NSRDEC field supervisor and Army military liaisons on-site at all times
- One measuring team, two measurers per station
- On-site computerized data entry and real time outlier identification
- Inter-observer error checked daily, corrected as necessary

PRODUCTS

- Accurate anthropometric specifications for Soldier requirement documents/military standards
- Statistically optimized families of digital human models for sizing/design of equipment/vehicles/workstations using multivariate statistical methods, leveraging 3D scanning technology
- Updated procurement tariffs
- First ever anthropometric engineering database that represents the Total Army population through traditional direct measurements and 3D scan images on the same subjects
- Improved comfort, performance, and conformity of body armor and other personal protection equipment

